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HM2

MODELS IDENTIFYING VARIABLES INFLUENCING PHYSICIAN ADOPTION OF NEWLY LAUNCHED PHARMACEUTICALS IN THE UNITED STATES

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OBJECTIVE: An absence of the understanding of the variables influencing physician prescribing behavior has limited the ability of pharmaceutical manufacturers to optimize resources dedicated to marketing newly launched products. This investigation fills a void by investigating the relative influence of five sets of predictors upon the likelihood of a physician to adopt a new product. **METHODS:** The prescribing behavior of 3646 physicians was examined for the first 18 months after drug launch for 32 new drugs in 7 chronic disorders entering the market between 1997 and 2000. Two OLS regression models were derived—one examining innovative, first in class, drugs and the other examining follow-on products. The models utilized two dependent variables, the total number of prescriptions written for the new drug in the 18 months following launch and the incremental number of prescriptions written by the physician from the company marketing the new product. **RESULTS:** The models examined the relative importance of five types of variables, physician demographics, physician practice data, physician prescribing patterns prior to the new product launch, level of marketing support from the launch company and the relative product price. The relative importance of the variables differed appreciably between the two type drugs. **CONCLUSIONS:** Physician Pre-Launch Company Prescribing Loyalty is the most significant predictor of the adoption of innovative drugs, while Marketing Power and Price are the most significant predictors of the adoption of follow on products. This investigation provides OLS regression models for the optimization of marketing resources.

HM3

PREDICTING PHARMACY COSTS USING HEALTH-RELATED QUALITY-OF-LIFE AND PHARMACY CLAIMS MEASURES IN ADULT ASTHMATICS

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OBJECTIVE: To investigate if a health-related quality of life (HRQOL) measure can predict pharmacy costs in insured adult asthmatics independently and in conjunction with a baseline pharmacy claims risk index and prior pharmacy costs. **METHODS:** Historical cohort analysis of pharmacy claims and HRQOL. Asthmatics were invited to complete the SF-36 quality of life instrument between May 12, 2001 and November 30, 2002. Pharmacy claims for the year prior to this interview were used to derive baseline measures of the AdvancePCS pharmacy claims health risk index and prior pharmacy costs. The study's outcome measure, pharmacy costs in the year following the baseline interview, was calculated for those who remained eligible for pharmacy benefits during the entire study period. Correlation statistics were calculated. Linear regression modeling evaluated the association between the outcome measure and each SF-36 domain, the risk index, prior costs, member sex, and age at baseline. **RESULTS:** A population of 247 adult asthmatics from a million-member, Mid-Atlantic health plan was included. Follow-up year pharmacy costs were moderately correlated with the pharmacy risk index (Spearman +0.576, $p < 0.001$) and weakly negatively correlated with the physical summary score (Spearman –0.340, $p < 0.001$). However, prior pharmacy costs had the strongest correlation (Spearman +0.87, $p < 0.001$). The physical summary score was a significant predictor of next year's pharmacy costs (Coefficient –110.92; $p < 0.001$) after adjustment for age in linear models ($R2 = 0.134$). However including the pharmacy risk index (Coefficient 72.770; $p = 0.06$) and prior pharmacy costs (Coefficient 0.948; $p < 0.001$) vastly improved the explanation of variation in follow-up pharmacy costs ($R2 = 0.774$) and eliminated the independent significant effect of the physical summary score (Coefficient –8.236, $p = 0.518$). Similar removal of significance occurred with other SF-36 domains after adjusting for claims measures. **CONCLUSIONS:** While HRQOL independently predicts follow-up costs, it does not improve predictive models using prior pharmacy utilization in this study population of adult asthmatics.

HM4

HOW ROBUST IS COST-EFFECTIVENESS RATIO TO MISSING DATA IMPUTATION? ANALYSIS OF LONG-TERM CLINICAL TRIAL IN PARKINSONS DISEASE

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OBJECTIVES: Subject attrition is unavoidable in long-term clinical trials. Using various assumptions about missing data, this study estimates incremental cost-effectiveness ratios (ICERs) and welfare (W) consequences of two drug therapies in patients with early Parkinson's disease (PD). **METHODS:** Three hundred one subjects with PD were randomized to initial pramipexole or levodopa and followed every 3-months over a 4-year period. Health care resource use was measured and costed using a variety of sources. Quality of life (Qol) was measured using a visual analog scale. Using a multivariate fixed effects model, we imputed missing Qol and cost data and calculated the 4-year total QALYs and costs for each treatment arm. The ICER and the welfare (W) estimates, using $50K as a cost of QALY, were bootstrapped to calculate the standard errors. We conducted a sensitivity analysis on the ICER and the W under optimistic and pessimistic assumptions of a subject's Qol after dropout based on the trends estimated from the multivariate analysis. The slope of the post-dropout Qol was modified based on the beta coefficient for the dummy variable indicating last visit before dropout. **RESULTS:** The base case cost-effectiveness was $32,107/QALY and welfare enhancement due to initial pramipexole versus levodopa was $2748 (SD 4526). If subjects were to decline after dropout, the